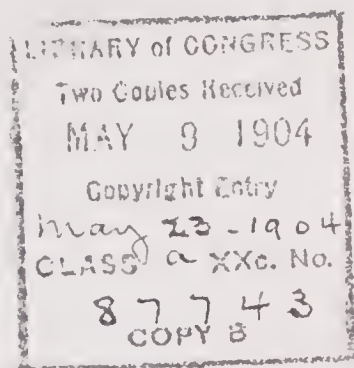


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HOW TO BIND A BOOK

ILLUSTRATED

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INTRODUCTION.

In the small book, of which this is the preliminary chapter, we propose to treat, succinctly but completely, of the various practical operations gone through in the binding of books, and in so doing we shall keep the wants of the amateur especially in mind. Unquestionably, the bookbinding art is one which any intelligent and fairly-handy printer can practice in his own office; and as the object upon which his ingenuity will be exercised comes necessarily much into his daily occupation, he will experience the lively satisfaction of being able to handle a greater variety of work than were he to jog along in the old rut, turning down much profitable business simply for the want of knowing how. Bookbinding is a clean and not too laborious occupation, which can be easily practiced at odd hours. It can be used as an adjunct, or filler-in, to a printing office, as seldom is the word "rush" attached to an ordinary binding order.

In the following chapters we shall go on to describe, consecutively, the various processes as practiced by a professional bookbinder, following each by any expedients which may seem more within the power of the amateur. We must, at the outset, beg those who desire to take up the work to lend their best attention to the subject. Bookbinding is, undoubtedly, a delicate and difficult art, and it is almost impossible to describe some of even its simplest

processes. We would suggest that the student make an object lesson of some old books, and by saturating them with water and carefully taking them apart, beginning at the top, as in demolishing a house, or, in other words, commence with the last act herein described in binding a book, and follow back to the first. In so doing he will get a clear idea on the subject, and will find that he is a long way on the road to success. In many cases the slightest deviation from the teaching will risk inevitable failure in the process described; but to make up, as far as may be, for the lack of personal showing "how to do it," we shall illustrate quite freely the various operations at different stages.

If the desire was to "pad out" this book, we could go into the history of the art and devote a goodly share of its pages to that subject, but as it is the intention to make it a manual of instruction, all unnecessary and obsolete matter will be left out. In the matter of design in finishing books, we suggest that you carefully study those that come under your observation, and you will be able to gain a great deal of information.

The process of binding the different styles of books will be taken up separately, beginning with the simplest, or check binding, and the different tools and appliances will be mentioned and described as they come into use. The reader will be surprised and pleased at the variety of work that can be done with a very small outlay for the equipment of his

bindery. In the back of the book will be found a list of the articles mentioned in the book together with their probable cost and where they may be obtained.

There is one thing you must get thoroughly impressed upon your mind, and that is cleanliness and neatness in all your operations. Nothing mars the beauty of a book and spoils the temper of a customer so much as finger-marks and wrinkles in the paper. They can easily be avoided, and if at the very beginning you practice cleanliness, it will become as a second nature to you, and will be a source of much satisfaction to you all through your career as a binder of books.

THE PUBLISHER.

Lincoln, Nebraska.



CHAPTER I.

CHECK BINDING.

In drifting around over the country we have bumped up against printing offices where they made no pretension of doing even check binding—some claiming it didn't pay to "monkey" with it, and others had this excuse and that excuse; when, if they had stated the facts, they would have been compelled to admit they did not know how to put a simple hinge back on a check or receipt book.

The only outlay for tools to do check binding is a bone folder, (one that comes to a point at one end is the best, for it can be used to the best advantage all through the different processes of binding,) a common pegging awl, a pound of Hayes' No. 16 linen thread, two dressed inch boards, twelve or fourteen inches wide, and short enough to slide in under the paper cutter clamp, a paper of blunt needles, quart glue pot, a glue brush, and, say, five pounds of ground glue. Binder's cloth can be purchased in any quantity from one yard up, (I would suggest black cloth to commence with,) and marble board can also be purchased in any quantity desired. Get two yards of seven or eight cent bleached muslin, and you will probably have enough stock to bind all the receipt books you get for a year.

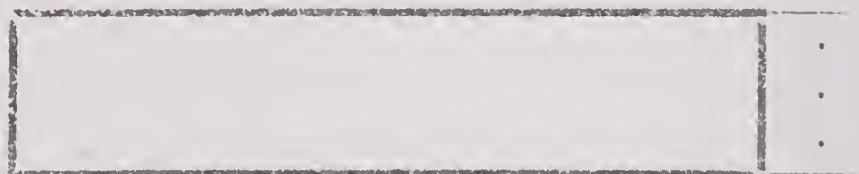
We will say your first order is for 500 receipts to be check bound in five books of 100 each. When you cut the stock for the job add

enough to have ten sheets extra and lay them aside for waste leaves. After the job is printed and ink dry, divide in five equal piles, get the ten waste leaves and place one on each side of each book, then lay the books on top of each other, jog them up straight and tab them on the end where they are to be sewed. By tabbing them it keeps them straight while punching the holes, sewing, and, in fact, keeps them in better shape during all the process of binding. While they are drying, cut ten pieces of marble board the same size as the books, five pieces of muslin the same width as the books and three inches long; also five pieces of binder's cloth the same size as the muslin. Now get your glue pot in shape by lifting out the smaller pot and filling the other one about two-thirds full of cold water, set the small one back in its place and put about equal parts of glue and water in it and set pot on the stove to get hot. Luckily it is winter now and you can melt your glue on the heating stove, but later on you will have to get a one-burner gasoline stove.

By this time the books are dry, and you carefully cut them apart, making sure that the waste leaves are left on the book in their proper position. Take the five pieces of muslin and lay them one on top of another all in one pile; paste the top one and lift it up and place it on the back of a book, letting it extend equally up each side of the book. Proceed with the balance of the books the same way. Stack up the ten sheets of marble board on top

of each other, marble side down; paste the top one and lay it on a book, leaving half an inch at the back for sewing purposes; this will cause the board to extend over front of book half an inch. Turn the book over and paste another board and place it in position; and so on until you have the boards on all five books. Right here let me caution you to always put an old newspaper or other waste paper on table when you are pasting or gluing anything, as it keeps the table clean.

Place one of the boards under the paper-cutter clamp in such a position that were the knife to descend it would split the board half in two. Lay the books along on this board place the other board on top of them and screw down the clamp. Leave the books in that position for an hour, then loosen the clamp and push the top board back about three inches, and screw down clamp again. You now take the awl and mallet and punch three holes in each book about a quarter of an



(The dark lines represent the cover, the light lines the book, and the dots the location of the holes.)

inch in from the back, using care that the end holes are far enough in for the knife to clear them when trimming the book. The books are ready to sew now, and you take them back to the table and get the needle and thread; also take a glance at the glue to see how it is com-

ing on, as you will need it in a few minutes. The knot in the thread should always be at the back of the book in this kind of binding, so turn the book on its face and pass needle down through the center hole and up through hole at the right hand; pass the center hole and insert needle down through hole at left hand and back up through center hole in such a position that the long stitch will be between the two



(The stitch in check or pamphlet binding.)

threads. Now to tie the knot—have the long thread in your right hand, hold left hand in front of your body, palm towards you, the three last fingers closed, the thumb and first finger open and pointing toward your right arm. Pass the long thread around thumb and finger of left hand, going over them and from the body and bring the thread back under them; you now have a loop. Turn the left hand so thumb and finger will point in front of you and down toward the middle hole of the



(The loop in making the knot.)

book where the short end of the thread is extended. Grasp the short end of the thread between the thumb and finger and let the loop slide off over them and around the thread end. at the same time pull the long end with the right hand and you have the binder's knot. Tie another knot, and cut off the thread, leaving say half an inch extending from the knot. Proceed with the other books the same way. then take them to the paper cutter, lay them on the edge of the bed, and pound down the holes and knot with a hammer.

You now glue the cloth and put it on the same way you did the muslin, using care to rub it down well with the folder. Stack the books up "backs and fronts" as it is called, or, in other words, let the back of the second book be turned around opposite from the back of the first book, and so on: letting the backs extend out far enough so the freshly glued cloth will not touch the book below it. Put a small weight on them while they dry. In about half an hour, or when they are almost dry, it would be well to go over the cloth again with the bone folder to make sure that the cloth is fitting the back and joints snugly. In another hour they will be dry enough to trim. Trim the sides first, then the end: and when trimming the sides have the backs of the books toward the side of the cutter that the knife descends from: that way there will be no danger of the knife pushing the cloth away from the book. If you trim all five of the books at once, put strips of strawboard be-

tween the backs to fill up the spaces caused by the hinge.

Your books are now ready for delivery, and this ends the first lesson in cbeck binding. Some parts of it may have come a little awkward to you the first time, but by the time you do another job or two it will all come handy. In conclusion I wish to say that some binders prefer strawboard covered with marble paper, rather than the marble board. The only difference in the process of binding is that the marble paper is glued and layed on the boards smoothly the next step after the binder's cloth is put on. Always use glue on your marble paper, as paste "kills" its glossy finish.

PAMPHLET BINDING.

In binding pamphlets the sewing is the same as for cbecks and the cover glued on. When the pamphlets have only a few sections and are printed properly they should be inserted and stitched through the fold, or "saddle-backed." This way the cover is stitched on at the same time, using a sharp needle, and the knot should be in the center of the book.

CHAPTER II.

HALF LEATHER BINDING.

The check books we bound in the preceding chapter so pleased our friend the banker that he gave us another order. He wants 500 drafts bound 3-on, and would like a little better job of binding put on this book, if we can do it. Of course we can do it. We'll give him a leather back and leather corners and cloth sides book. The only addition we will have to make to our equipment will be to step over to the tin shop and get a sheet of tin and have it cut in two equal parts. We should also have a paring knife. The only addition to the stock on hand for this job is a skin of leather, known to the trade as buffing, which will contain about twenty-four square feet and will cost us about \$2.40. Our first move will be to take two sheets of paper of corresponding size and a trifle heavier if possible. Place one on each side of the book, the same as we did on our check books, then jog up perfectly straight and lay on table with binding end out and give a coat of the tableting composition, then paste muslin strip on. When dry we take a bradawl and punch five holes directly through muslin and all and about half an inch from the end and toward the front, punching the two end holes in far enough to avoid cutting into the stitch when trimming the book. We now proceed to stitch the book by using the thread double, laying the book face downward. We

first pass the thread down the middle hole, leaving about two inches of surplus thread to tie a knot with, then over to next hole on the right pass up and over to end hole on the right and down, then over to next hole on the left and up, then pass, skipping the middle hole, over to the first hole on left of middle hole and down, then over to end hole on the left and up over to next hole on the right and down, over to middle hole and up, where we find the two ends of the thread, and we form a good hard knot.

The book being stitched we hammer the stitch a little to flatten it and then trim the book to its required margin. This done we take the strawboard, as we have no other in stock, and cut it an eighth of an inch larger all around than the book, allowing of course for the joint, which would be about three-fourths of an inch smaller in middle than the book would be in its flusk state, this of course would give us our projecting squares as they are called. The boards being cut we will now attach them temporarily by tipping them with glue on the waste leaves about the middle of the edge of the boards to the back (this is done to hold them in place), avoiding any shift that would be liable to happen if the boards were not securely fastened in their proper position. The next move will be to cut the leather for the back and corners. To get the back the right size, we figure for the thickness of the book in this way: One hundred and sixty-seven sheets of ordinary paper would be about three-

quarters of an inch thick, our joints half-inch each and the lap on the boards about an inch each, making the width of the leather back about three and three-quarters inches in all and an inch and three-quarters longer than the book, thus allowing for the turn-in and including the projecting squares. The leather for back being cut we now pare the edges, laying the leather face down on a piece of glass or tin and paring it all around; this done we paste it well and fold it over, giving the leather a chance to soak up a little. After lying in this state about five minutes we take the book and glue its back lightly and then attach the back, drawing it over firmly and evenly.

We now stand the book on its back in a perpendicular position, and let the boards and the waste leaves lie on the table flat, still holding the book up perpendicularly with the left hand, and while in this position bring the boards down to easy working and turn the leather in under the book and over the board, at the same time forcing it in good and tight. Turning the book, we repeat the same action on the other end, and then close the book perfectly strait. And while in such state carefully rub the back with a folder and place the grooves in the joint by rubbing it in with the point of the folder. We now lay the book aside, being careful of its being perfectly straight, and while it is drying we cut the corners for it. In order to make this plain, we will illustrate the shape the corners should be cut. As there is but one way to do this, it may

puzzle an amateur to tell how it is done simple as it may appear. The corners must be cut in the shape shown in Fig. 1, and the edges pared

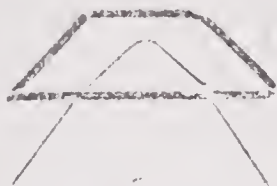


Fig. 1

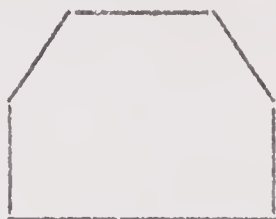


Fig. 2

all around. The book may be safely handled now, and the corners attached. The turning in of the corners will come quite naturally, and needs no explanation farther than practice before pasting them, as there is but one way to place them on the boards, and the shape of the corner will help very readily in its completion. The corners and back being in their place, the book is now what we call in leather, and right here the tins come in play. Put them between the covers and the book. Always keep tins between the dampness and the book or you will have some bad wrinkles in your book.

The next move, therefore, is to put the cloth sides on it. We will again have to illustrate the shape these are cut as we did the corners, there being but one way to cut these. After allowing a half-inch turn-in on the boards, we cut the corners in the shape illustrated in Fig. 2, lapping corners and back about an eighth of an inch. This done, we glue the cloth as evenly as possible and lay it on, rubbing it hard and even, and then lifting the boards turn in the edges firmly, repeating the same thing for the other side. The book is now sided, and after

leaving it to dry for a half hour or so, we perform the last course by pasting it up, as it is called. This is done by detaching the boards where we tipped them before adding the leather and after detaching them pasting the waste leaves very evenly with moderately heavy paste, and then close the covers and place between two boards and put the book under the cutter clamp and squeeze hard, leaving it under pressure as long as possible but not less than two hours. When taken out the book is ready for delivery, and we have bound what is called a half-bound, cloth sides book.



CHAPTER III.

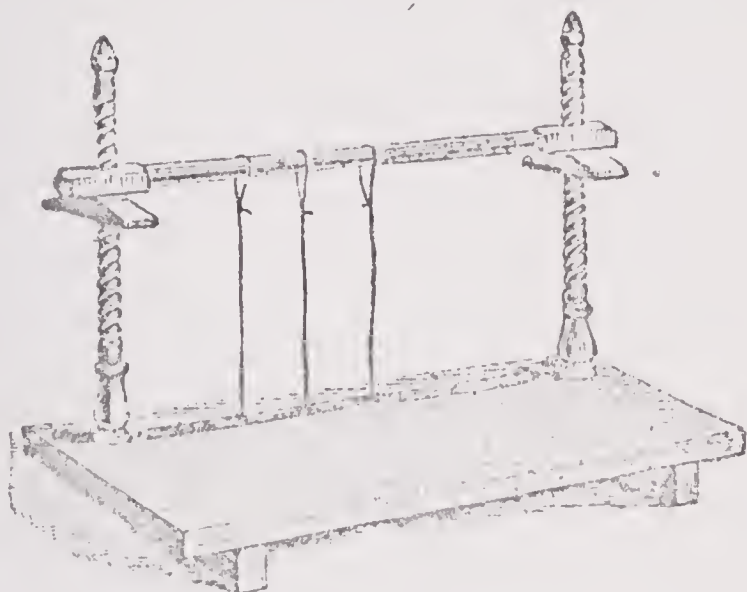
FLEXIBLE BINDING.

The subject of this chapter we will divide into two classes. For the first example we will take a bank pass book. To do this job you will not have to add anything to the equipment of your bindery, but to stock you will have to add a quire of leatherette. We take it for granted that you have some manila board on hand. The paper for this job will have to be special ruled at your paper house, and when you print it, it would be well to do the printing on the leatherette at the same time, so they will both dry together. When you cut up the leatherette paper, cut it one-eighth of an inch larger the fold-way than the ruled paper, so that when they are folded together they will come even in front. Also cut from manila board as many pieces as you intend to have books and the same size as the leatherette. The manila board, to do a nice, neat job, will have to be scored at the fold. Just take rollers off the job press and lock up a piece of column rule in chase and it will only take a few minutes time and result in a much neater job.

The first step in binding the books is to fold the sheets of paper and gather them into books, fold the manila boards and insert the books into them as though they were the covers. Now comes the sewing and if you can get at an ordinary sewing machine that will make a stitch about a quarter of an inch long you can

do a much neater job of sewing, if not, sew the same as though it were a small pamphlet; of course which ever way you do the job it must be sewed "saddle-back," or through the fold, and if sewed by hand have the knot on the inside, if sewed on machine commence about one-fourth of an inch in from the end and stop the same distance from the other end. Then draw both threads through to outside of back and tie hard knots. That will keep thread from raveling out. You now lay a number of the leatherette covers on top of each other, paste the top one, and lay it at another place on the table, paste side up. Lay the book on it, edges even, and bring the other side over and smooth it down with your hand. When you get say a dozen finished put them between the boards and screw down the cutter clamp on them snugly and let them stay while you paste up some more. Then take them out, pile on top of each other and weight down. Put the other lot under the clamp, and so on until you have them all covered. The books should all be piled several deep between the boards and left under the clamp over night, but be careful to see that they do not stick together. In the morning the books are ready to be trimmed, and if you have a round-corner cutter, round the corners; if not, you can do a fairly satisfactory job with a round chisel, or gouge, by piling several on top of each other on a board under the cutter clamp to hold them stationary. They are then ready for delivery. The price is usually from six to eight dollars a hundred.

To do the next job of flexible binding you will have to make some additions to your equipment, namely: A sewing bench, a finishing press, a small saw and a ball of soft twine. You can have a carpenter make a sewing bench, by having a blacksmith make two half-inch rods about fifteen inches long, cutting

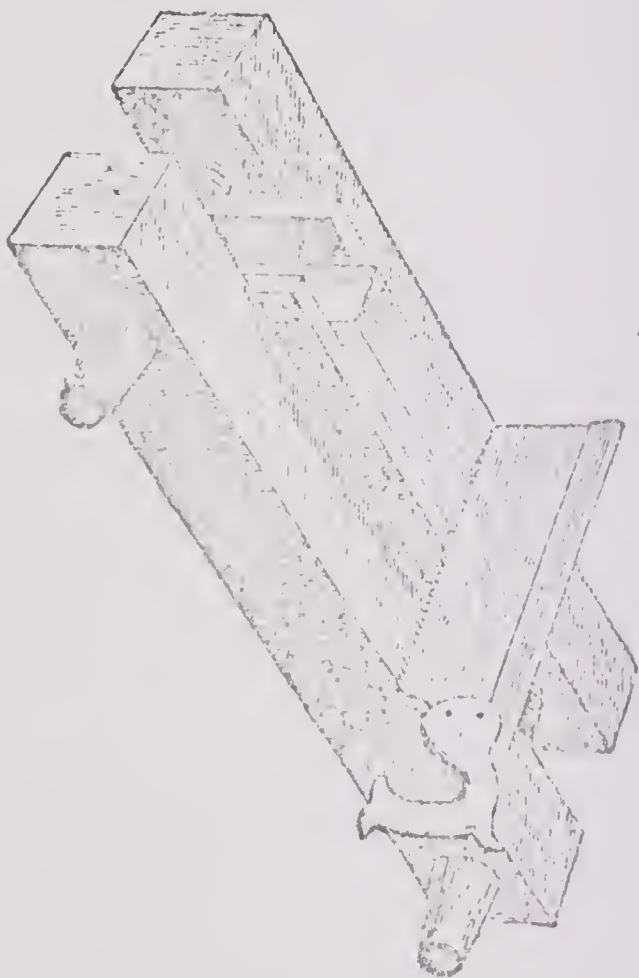


(Sewing Bench.)

threads on each end about four inches long and putting two nuts on each end: or you can buy it of a binder's supply house. It would be best to make your finishing press, as you will have to use it for sawing and backing the books, and it should be quite strong. Use 4x6 finished hard pine thirty inches long, and two carpenter's iron bench screws, one at each end.

This job of binding is an old book from which the back has become detached, and the party wishes it bound full leather flexible. Lay the book on the table with the back extending

slightly over the edge and give a heavy coat of paste all over the back for the purpose of loosening up the old glue. In about an hour you can scrape the old glue and the paste all



(Finishing Press.)

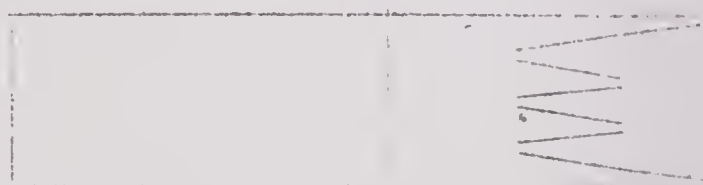
off with the folder or a dull knife. Now take the book carefully apart in its original sections by cutting the threads carefully, using extreme caution not to tear the paper. Lay the sections on top of each other in their proper order so they will not get mixed up.

Old books that have to be resewed should have new kerfs sawed in them for the cords and kettle stitches. In the next chapter we will fully describe the sawing in, sewing, trimming, rounding, backing and attaching the end leaves, so will proceed with this book as though we had just trimmed it. As a small flexible book looks better with round corners we will use the chisel on it and round the corners. Then lay it on the table with the back projecting slightly and give a coat of glue. When the glue is almost dry, round the book. Take it back to the table, and if you wish to color the edges, lay the front of the book even with the edge of the table, place a small board on top of it, and with your right hand apply the color with a small round brush, while pressing down on the board with the left hand. Proceed the same way with the ends. Books bound flexible are not lined up nor are headbands used, consequently the next step is to get a sheet of about 150-lb. manila board and cut the boards for the book, letting them extend an eighth of an inch larger than the book at each end and the front and come up almost even with the back. Be sure and get the same round on the corners that there is on the book. In cutting the leather for the book allow about three-eighths of an inch for turn-in all around the book, and it would be better to cut a pattern for the size of the leather out of a sheet of paper. Cut a strip of paper three-fourths of an inch wider than the manila board is long, then place boards in

their proper positions on the book; now catch the book at each end with thumb and finger and lay it on the pattern in such position that will leave equal margin in front and at each end, then with the right hand pressing lightly on the book to keep board in place, bring the paper pattern up over the book with the left hand, then let the left hand rest on the book near the back and remove the right hand and paper will fall in its proper position. You now mark the paper for the proper margin in front. Remove the book and proceed to cut the leather, after which round the corners slightly and pare the edges.

The next move will be to paste the leather thoroughly, then place the book on it the same way you did on the paper pattern, being very careful that the boards are in their proper position. Bring the leather up over the book the same as the pattern, and examine the book to see that the margins, or "squares," are properly divided, then lay the leather back from off the top of the book with the top board adhering to it. Lay the book to one side and proceed to turn the leather in around the boards, the ends first, then the sides.

To get a nice crimp at the corners the leather must now be raised up for about half



an inch at the corners and by using a stick

made like the above out of a piece of nonpareil or pica riglet six or eight inches long, with the sharp edges rounded off, you can turn in the corners nicely. Go all around the edges and rub down well with the folder; then turn the cover, or "case," as it is generally called, over and rub down well with the hands. Do not use the folder on the outside of the case as it is liable to ruin the grain of the leather.

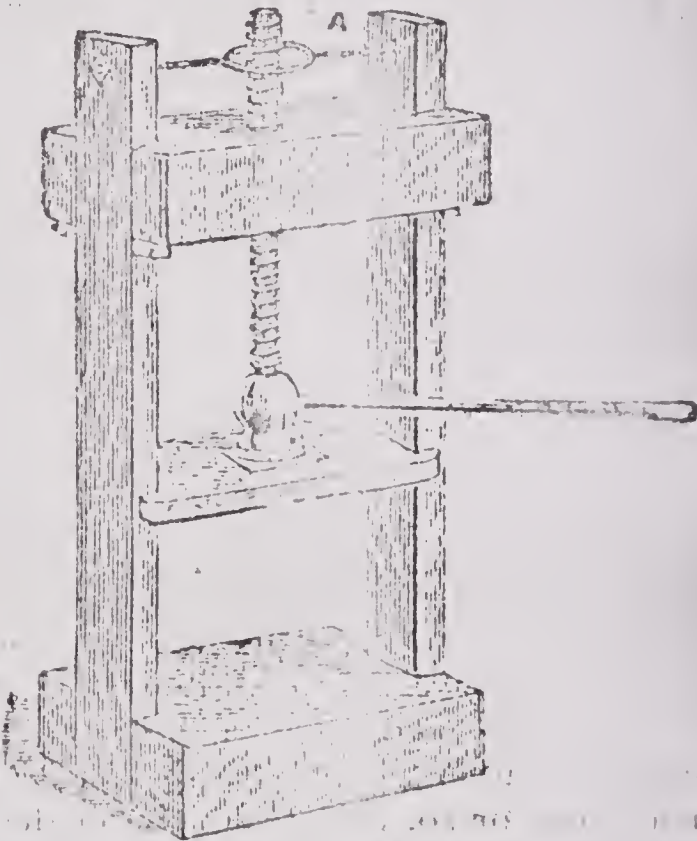
You will now take up some paste with your finger and rub it on the leather where it comes up to the back of the book, then give the back of the book a coat of hot glue and lay the book in its proper position on the case. Bring the case up over the book and draw it up snugly at the back. Care must be taken to have the book in its proper location in the case, for it is to be left for an hour or so to dry with a weight on top of it, and the way the book dries in the case so will it remain for all time.

The last step will be to raise the top cover, tear out the waste sheet and give the next one below it a coat of paste, and lower the cover on it. Turn the book and proceed the same way with the other side, after which put between boards and give a medium squeeze under the cutter clamp, where it is to be left for an hour or so, then remove, and the job is done, or ready to be lettered. For lettering in gold on this kind of work full directions will be given further along in the book.

CHAPTER IV.

EDITION BINDING.

Under this heading we shall describe all-cloth binding; also half leather or "library" binding. This will call for a number of additions to your equipment, among which will be a standing press, backing hammer, lettering



(Standing Press. By having your hardware dealer order a 3-inch house jack, a carpenter can make the above. It is not necessary to attach iron rod marked A.)

pallet, gilding roll, gold cushion, gold knife, two brass-bound boards, and two stool-faced backing boards.

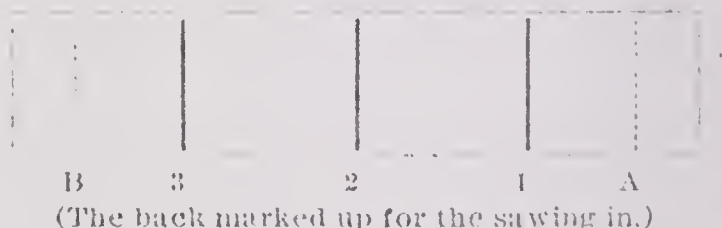
In addition to the stock already on hand you will have to add a bundle each of Nos. 20, 25 and 40 binder's board, a pound of Hayes' No. 16 2-cord linen thread, book of gold leaf, box of gilding powder, a quire of fancy paper for end leaves, a few yards of art canvas cloth of two or three different shades.

Our first example will be a volume of some magazine to be bound all-cloth. You first take off the covers, then with a make-up rule pry up the clinches of the wire staples, then pry the staples out, if you can, if not, remove the sections one at a time, beginning at the back. Lay aside all advertising sections and carefully place the different sections together in their proper positions, with the index in front. The book is now taken and knocked straight both head and back and put in the finishing press between boards, projecting from them about an eighth of an inch. (see illustration of finishing press.) The book and boards are held tightly with the left hand, and the whole carefully lowered into the press; the right hand regulating the screws, which should be screwed up tightly.

The book is now quite straight, and firmly fixed in the press, and we have to decide if it is to be sewed flexible or not. If for flexible binding, as described in the preceding chapter, the book is not to be sawn in, but marked; the difference being, that in flexible binding the cord is outside the sheets; in edition binding the cord is imbedded in the back, in the cut or groove made by the saw. We will take the

flexible first, and suppose that the book before us is an ordinary 8vo. volume.

The back should be divided into four equal portions, leaving the bottom, or tail, half an inch longer than the rest, simply because of a curious optical illusion, by which, if the spaces were all equal in width, the bottom one would appear to be the smallest, although accurately of the same width as the rest. A square is now to be laid upon the back exactly to the marks, and marked pretty black with a lead pencil; the head and tail must now be sawn in to imbed the chain of the kettle stitch



at A and B, and at a distance sufficient to prevent the thread being divided when trimming the book. In flexible work great accuracy is absolutely necessary throughout the whole of the work, especially in the marking up, as the form of the bands will be visible when covered. It will be easily seen if the book has been knocked up straight by laying the square at the head when the book is in the press, and if it is not straight, it must be taken out and corrected.

When the book is to be "sawn in," it is marked up as for flexible work, but the back is sawn, both for the bands, 1, 2 and 3, and kettle stitches A and B, with a tennon saw. In

choosing the saw, it should be one with the teeth not spread out too much. Care must be taken that the saw does not enter too deeply, and one must, in all cases, be guided in the depth by the thickness of the cord to be used. The size of the book should determine the thickness of the cord, as the larger the book, the stronger and thicker must be the cord.

I think nothing looks worse than a book with great holes in the back, sometimes to be seen when the book is opened, which are due to the inattention of the workmen. Besides, it causes great inconvenience to the forwarder if the cords are loose, and the only thing he can do in such a case is to cram a lot of glue into the grooves to keep the cord in its place. If, on the other hand, the saw cuts are not deep enough, the cord will stand out from the back, and be distinctly seen when the book is finished, if not remedied by extra strips of leather or paper between the bands when lining up. It is better to use double thin cord instead of one thick one for large books, because the two cords will lie and imbed themselves in the back, whereas one large one will not, unless very deep and wide saw cuts be made. Large folios should be sawn on four or five bands, but three for an 8vo. is the right number, from which all other sizes can be regulated.

Flexible Work.—The “sewing press” consists of a bed, two screws and a cross bar, which has already been illustrated and described. Three pieces of cord are cut from the ball of soft twine long enough to have a slip knot at

one end with a nail inserted therein and to extend up to the cross bar, go around it twice and tie a knot. Pass the nails down through the slot in the bed of the press and secure the other ends of the cords to the cross bar, then screw up nuts rather tightly; but loose enough to allow cords to move freely backwards or forwards. Having the book on the bed of the press with the back towards the sewer, a few sheets (better than only one) are laid against the cords, and they are arranged exactly to the marks made on the back of the sections. When quite true and perpendicular, they should be made tight by screwing the beam up. It will be better if the cords are a little to the right of the press, so that the sewer may get her or his left arm to rest better on the press. If when the press is tightened one of the cords is loose, as will sometimes happen, a pencil, folding-stick or other object slipped under the cord on the top of the beam will tighten it sufficiently.

The first section is now to be laid against the bands, and the needle introduced through the kettle stitch hole (A) on the right of the book, which is the head. The left hand being within the center of the section, the needle is



taken with it, and thrust out on the left of the band marked 1; the needle being taken with the right hand, is again introduced on the right of

the same band, thus making a complete circle round it. This is repeated with each band in succession, and the needle brought out of the section at kettle-hole (B), the next section is now laid in place, the center found, and needle inserted at (B) where it is taken with the left hand and passed out on the right-hand side of cord (3) and in on left-hand side of same cord. Draw the thread in good and plump, but be careful not to tear the paper. Proceed in the same manner at cords (2) and (1) and pass needle out a kettle-hole (A), where you tie the long thread to the end protruding from the first section with the knot already described. Proceed with the third section the same as first one to bringing needle out at (B), then pass needle in between sections one and two and to right of thread that connects them at (B), and bring it out at left of book. Pull the cord pretty well through and bring it around to the back of the book where you pass needle up through the loop, and you have formed the kettle-stitch. Proceed with the sewing, forming kettle stitches at each end until the book is finished, when you tie an extra knot or two to make it more secure. Care must be taken not to draw the kettle-stitches too tight or the thread may break when rounding the book.

In *Ordinary Work* the saw kerfs are made at (A) and (B) the same as flexible, also at (1), (2) and (3). The starting of the sewing at (A) is the same, but the needle is brought out to the right of cord (1) and inserted at the left of the same cord, then passed to cord (2) and the

same thing repeated, and so on to the end. In sewing a book with a large number of pages it is often necessary to sew "2-on" to keep down the swell in the back caused by too much thread. The illustration below will suffice to

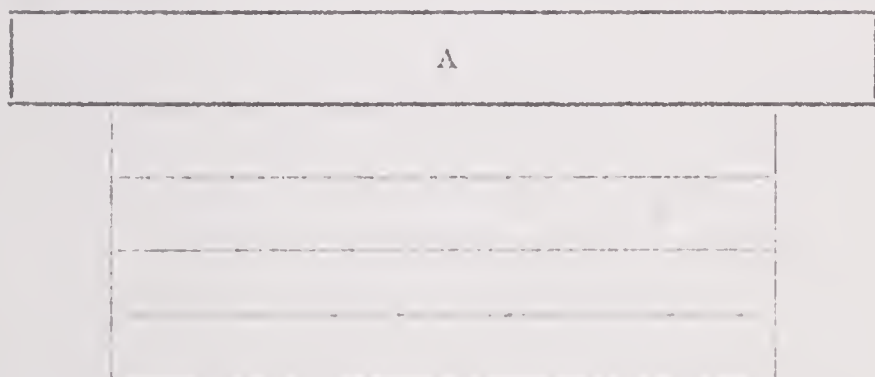


make the instruction clear. The first two sections should be sewed the ordinary way just described. Lay on section three and insert needle at (A) and out again at right of cord (1), then lay on section four, leaving bone folder at center of section three so it can be easily found again, insert needle in section four at left of cord (1) at mark (x), then out at right of cord (2); in at left of cord (2) and out at right of cord (3) at mark (o), then down to section three and in at left of cord (3) and out at kettle-hole (B), where you form the kettle-stitch. Place section five and insert needle at kettle-hole (B) and out at left of cord (3), then place section six and insert needle at right of cord (3), and so on to the last two sections, which should be sewed straight across, the same as the first two sections. As a needle-full of thread becomes exhausted, tie the end of the new thread to the old one close up at outside of book, thereby you will have a continuous thread all through the book.

The magazine is now sewed the ordinary way. Cut the cords about two inches above the book, turn the nails so they will come

through the slit in the bed of sewing bench and lift book off, removing the nails and drawing out the knots in the cords. The next step is to throw the first section of the book back, lay a straight strip of paper along on the second section between an eighth and a quarter of an inch from the back and with the middle finger of your right hand take up some paste and rub along on section two at the back where it is not covered by the waste sheet. Then turn the top section back in its place, turn book and proceed the same way with the other side. The object is to secure the two outside sections in such a way that they will not "start" or get out of their proper locations when rounding the book.

You now take two sheets of the fancy paper and two sheets of ordinary M. F. book paper and cut them as large again as the book. Fold the sheets in the center, the fancy sheets so



(Leaves "fanned-out" for pasting. (A) is waste sheet.)

their color will be inside. Lay one fancy sheet on top of the other one, (or "fan them out" as it is called,) so their backs will lack a quarter of an inch of coming even, then lay a strip of

paper on the top sheet a quarter of an inch in from its back. Take a small amount of paste on brush and paste the uncovered portions of sheets, then lay back top leaves of plain sheets and place fancy sheets in them even with the folds. Turn top sheet over on the fancy one and rub down slightly with the folder. The end sheets are now secured together. Now lay one on top of the other the same as you did the fancy sheets, pasted side up, give them a coat of paste and turn them over and attach them to the top and bottom of the book. Then rub them down well and let stand for a short time to dry. The book is now ready to trim. Trim the front first, then the ends. Care must be taken to keep the book perfectly square up and down when trimming the book. To offset the swell in the back when trimming ends place a small board on top of the book with the end next to the back of the book beveled up. That will allow cutter clamp to come down square on the book.

The book being trimmed, the next thing in order is to give the back a good coat of hot glue, rubbing it in well between the sections. While the glue is drying it will be well to cut the boards for the cover out of a No. 20 board. It should be cut about one-third of an inch longer than the book and the same width. It is a good idea to paste a sheet of plain, blank paper and attach it to the roughest or inner side of the board, for in drying the paper has a tendency to warp the board in toward the book. If this is not done, when

the cloth is put on it will warp the boards out from the book. When the glue is almost dry the next step will be the rounding.

In rounding the back, the book is to be laid on the finishing press, imposing stone or bed of cutter, before the workman with the foredge towards him; the book is then to be held with



(Rounding the Back of a Book.

the left hand by placing the thumb on the foredge and fingers on the top of the book pointing towards the back, so that by drawing the fingers towards the thumb, or by pressing

fingers and thumb together, the back is drawn towards the workman at an angle. In this position the back is struck with the face of the hammer, beginning in the center, still drawing the back over with the left hand. The book is then to be turned over, and the other side



(Proper Position in Sewing.)

treated in the same way, and continually changed or turned from one side to the other until it has its proper form, which should be a part of a circle. When sufficiently rounded, it should be examined to see if one side be per-

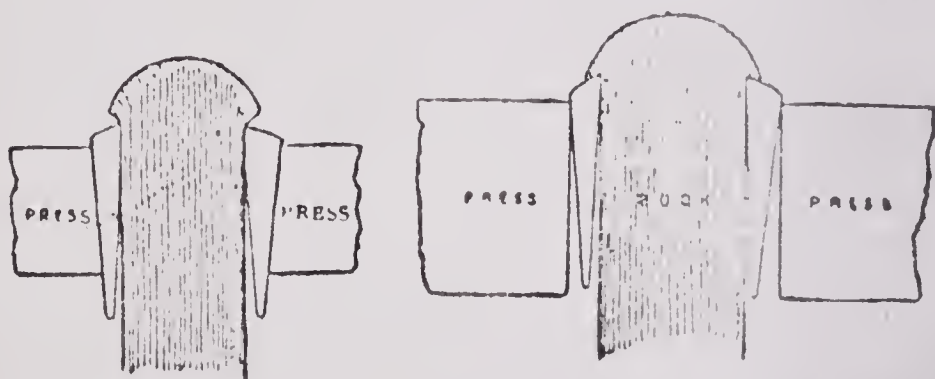
fectly level with the other, by holding the book up and glancing down its back, and gently tapping the places where uneven, until it is perfectly true or uniform. The thicker the book the more difficult it will be found to round it; and some papers will be found more obstinate than others, so that great care must be exercised both in rounding and backing, as the fore-edge will have exactly the same form as the back. Nothing can be more annoying than to see books lop-sided, pig-backed, and with sundry other ailments, inherent to cheap book-binding. The back when properly rounded should be about a third of a circle.

The boards required for backing are called backing boards, and can be bought steel lined at so much per running inch, or they can be home-made out of some tough material. They have their tops planed at an angle, so that the sheets may fall well over. The book is now ready to be backed.

Hold the book in the left hand, lay a board on one side, a little away from the back, taking the edge of the top sheet as a guide, the distance to be the thickness of the binding boards intended to be used. Then turn over the book, with the backing board, holding the board to the book by the thumb, so that it does not shift, and lay the other board at exactly the same distance on the other side. The whole is now to be held tightly by the left hand and lowered into the press. The boards may possibly have shifted a little during the process, and any correction may now be made

whilst the press holds the book before screwing up tight, such as a slight tap with the hammer to one end of a board that may not be quite true, it will be better to take the whole out and readjust them, rather than lose time in trying to rectify the irregularity by any other method. If the rounding is not quite true it will be seen at once, and the learner must not be disheartened if he has to take his book out of the press two or three times to correct any slight imperfection.

The book and boards having been lowered flush with the cheeks of the press, screw it up as tightly as possible with the iron hand-pin. The back of the book must now be gently struck with the hammer, holding it slanting



(Before Backing.)

(After Backing.)

and beating the sheets well over towards the backing boards. Commence from the center of the back and do not hit too hard, or the dent made by the hammer will show after the book has been covered. Each side must be treated in the same way, and have the same amount of weight and beating. The back must have a gradual hammering, and the sheets, when

knocked one way, must not be knocked back again. The hammer should be swung with a circular motion, always away from the center of the back. The book, when opened after backing, should be entirely without wrinkles: their presence being a sign that the workman did not know his business, or that it was carelessly done. Backing and cutting constitute the chief work in forwarding, and if these two are not done properly the book cannot be square and solid—two great essentials in book-binding. Books bound flexible, owing to the thinness of the covers, need not be backed.

Our book being rounded and backed, the next thing in order is to take it out of the press, put a small board on each side even with one end and put book back in press and sprinkle the edges, (Full instructions for finishing edges will be given farther along.) after which it is taken to the table, given a coat of glue and the headbands attached, and the back lined up with two thicknesses of heavy wrapping or cover paper. A very neat headband can be made for this kind of work by taking a strip of striped percale about one inch wide and a foot long, (the stripes running the short way,) giving it a coat of paste, laying a string along the center and folding cloth over it. Fancy headbands can be bought of the supply house, and are preferable on the better grade of work. A strip of super is now usually attached to the back to strengthen the joints, but as we have none, a piece of muslin can be substituted. The book is then given

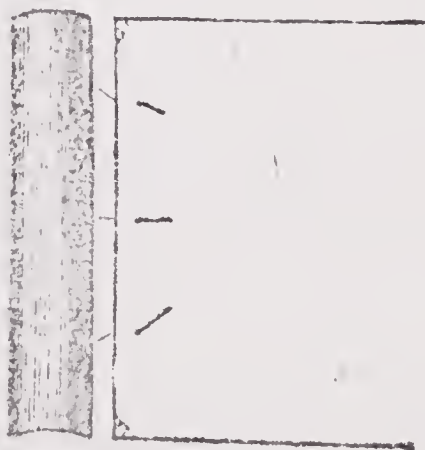
another coat of glue for lining-up the back. In lining the back the paper should be a trifle longer than the book. When you attach it leave about a quarter of an inch of the glue exposed above it. Rub it down well to the back of the book, and turn book and fold lining sheet even with the edge of the back and rub it down well on the glue left exposed at the beginning. If the lining paper is thin it is the usual thing to give the back three thicknesses of lining. To do that you would now give the back another coat of glue and fold the sheet back over it. After letting it stand a few minutes to set, fold the sheet back again and run knife along the fold to remove the surplus paper. Then with the seissors cut off the surplus paper at the ends close up to head-bands.

Cut the cords the book is sewed on down to within an inch of the book, and frazzle them out by bending them out straight from the back and striking them rapidly in a fanning motion with a piece of strawboard. Tear off the waste leaves of the book and with your fingers give the frazzled ends of the cords a coat of paste and attach them to book. Then give the muslin a coat of paste and likewise attach it to the book.

The next step is to make the "case" the same as in flexible binding, except as this book has square corners, the corners of the cloth must be clipped off with the seissors about an eighth of an inch from the corner of the board just before you commence turning in the cloth.

You will notice on all cloth-bound books a gutter running the full length of book between the back and the boards. When placing boards in position allow for that space. When the book is ready to lay aside for the case to dry on it, rub folder along to form the gutter, and if you will have two pieces of column rules fastened to the edges of two nice, smooth, three-quarter inch boards and use the boards above and below the book when putting it under pressure after pasting end sheets, you will find them to answer all right.

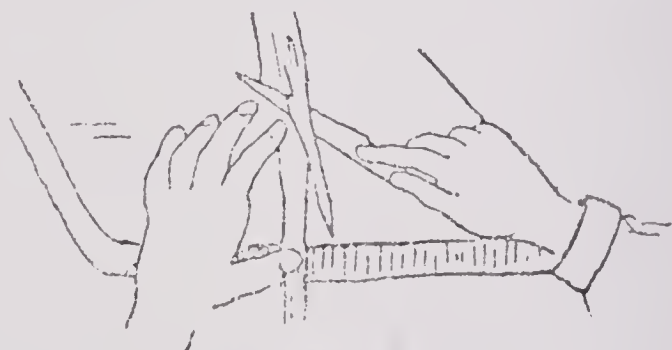
Library or half leather binding comes in under this heading, and follows the same course of treatment up to frazzling the cords.



(Lacing on the Boards.)

Cut the cords off about three inches from the book and scrape the ends to a point with knife and put paste on them. Should you desire to have raised bands on book they must now be attached to the lining paper with paste. The cord the book is sewed on will be large enough

for the bands. The next thing in order is to fit the boards on book close up to back and see that the "squares" are properly divided. The square in front should be a trifle larger than at the ends. On this kind of binding the boards are always laced to the book. Place boards on the book and mark for the first holes opposite the cords and about a third of an inch in from the edge. Punch three holes with an awl, then turn board over and punch three more holes about half an inch in from the first ones and a little to one side of them. Now place the boards on book and pass cords in through the first holes punched, then out at the others, and draw the board up snugly to



(Paring the Edges of the Leather.)

the backing of the book, after which give the holes farthest in a small rap with hammer to close the board up on the cords, when the surplus cords are cut off.

The leather is now prepared and put on as described in a previous chapter. The leather had better be dampened quite thoroughly with a wet sponge before paring the edges, and it will work down around the bands better if wet.

The learner is assured that it is no easy thing to learn to do a neat job of leather paring. I would suggest that you coax a shoemaker into giving you a few lessons. Another important and rather difficult thing in connection with this kind of binding is "setting the heads," or in other words, rolling the leather over the headbands nicely. When turning in the leather at the ends of the book, do not turn it in as closely at the headbands as you do over the boards, then insert the point of folder in at the back of the boards and give a slight pry outward, then with folder rub the leather lightly over the headbands and it will form a roll and partly cover the headband up. It will take quite a little practice to do this neatly. As there has been no bandsticks listed so far, you will have to rub the leather down on each side of the bands neatly with the bone folder.



CHAPTER V.

BLANK BOOK BINDING.

In order to do what is known as half bound spring back binding we will have to lay out a little more money in machinery, and just a trifle in material. We will, therefore, secure what is known as a back molding iron, and a piece of web band. We may now proceed on our first spring-back book, expecting, of course, to run into many difficulties as we proceed. Still we may hope to master the situation sooner or later to our entire satisfaction. Going, as we are now, into the blank-book making business on a small scale, we may, if we take special interest in the work before us, manage in a few months to turn out a fair blank book. Of course it will require practice, and by many may be given up as not practical to go this far into the bookbinder's trade. Yet for those who desire to overcome all obstacles, I will make all technical points as plain as possible, and the carrying out of my instructions must depend upon him who thinks by their aid he can master the work.

Our first move toward the job in question will commence with the examination of the heading. Taking it for granted that our job is ruled and printed and ready for the binder, we first examine each sheet carefully and see that none but perfect sheets enter the book. We then fold all the perfect sheets in sections of five sheets, if on ledger paper; if on ordi-

nary flat, say a 24-pound demy, then fold in six or seven sheet sections. We will say we have now in hand an eight-quire medium book on 36-pound ledger paper. After folding it in five-sheet sections, we rub the fold firmly, the closer the better. We now jog it up perfectly straight, being careful that all sections are placed one way, and always jogging them at the head. We take four sheets of blank paper, same weight and size, and fold in two-sheet sections, which are known as the end sheets. After folding, paste a strip of white muslin about an inch wide down through the fold on the inside sheet thus strengthening the fold for the sewing and place this pair of end sheets on each side of the book, front and back; jog up carefully, and lay book aside for ten or fifteen minutes, giving the muslin strip a chance to dry. This done, we take the book, put it in the finishing press, and taking a pair of dividers we divide the eighteen inches, or whatever size we may have, into five equal parts, and then scratch with an ordinary backsaw half an inch from each end—that is, half inch from extreme head, and same from the bottom of book, as in diagram herewith; scratch with



saw deep enough to go through the fold, so that when the section is opened the scratch may be seen upon the inner part of sections; these two scratches are for the kettle stitches.

Then with pencil mark off the location for the bands, as per heavy lines in diagram.

We now proceed to sew the book, using a three-cord linen thread well waxed, the first move being to take three strands of the thread long enough to cover the thickness of the book and two inches over, allowing an inch on each side of book; we make two of these into three strands of thread each, and slightly twist them. We then cut four web bands the same length as the two threads of three strands each already mentioned. Now thread a blunt needle and taking the first section of the book, lay it face down and pass the thread through the first saw mark on the top, passing it in from the outside. We now draw thread through the middle of section, leaving enough thread on outside to tie a double knot to the three-strand kettle stitch guard, which is then laid into the saw mark perpendicularly. After we have passed the thread through the section with the right hand, we draw it through with our left to within an inch of the end of outside and knot it in a hard knot to the kettle stitch guard; this done, we may proceed with the needle in our left hand and pass it through the next mark from the head of the book, and out; then we draw the thread tightly, but not tight enough to tear the paper; having our needle on the outside, we now lay one of our web bands between the double marks, pass the thread over it and through next mark. Our thread now holds this web band in place, and we pass our needle with left hand over to next

mark and push it through, drawing it out with the right hand; we lay another web band between double mark and pass the thread around it and in again, drawing it through tightly with the left hand; we now have two web bands in their places. We repeat this procedure until we have four bands in their place, and we reach the kettle stitch at bottom of book. We pass our thread out and draw it through with the right hand, lay our kettle stitch guard in the saw mark as we did at the head, only that we pass around it, and go back inside of section and back through outside again, and then form the knot. We now lay the first section of our book proper on top of end sheet face down and head up, and go back to head of book just the same way we came to the bottom. When we reach the head we tie the knot the same as we did at the bottom, lay on another section and go back to the bottom again, lay on another section and return to the head, and so forth, using a folder to rub each section down firmly as we get through sewing it; repeating this until we reach the end sheet, tying an extra good knot at the last kettle stitch reached. In joining our thread as we proceed, we must be careful and always have the knots fall on the outside, and always where a web band appears, as it is there that the knot is least conspicuous and makes the best job, as you may always pass the ends of the knot under your cross threads over the web band. A knot should never be placed inside of a spring-back book, although you

must place them there in a tight-back book. In preparing this kind of work for sewing some binders make saw mark on each side of the web bands instead of pencil marks, but such a custom should not be followed, as the book will not open as freely, neither can as good a job of sewing be done. If the sewer, before entering the section with the needle, will thrust it in at the place where it is to come out, the place can be easily located from the inside of the section.

We will now proceed to forward the book—or, in the language of the binder, put it in leather. Our first move, therefore, will be to take two muslin strips about an inch wide and the same length as the book, and paste them with heavy paste; then lift up the end sheets or first section of the book and place strip half on that section and half on second section. Repeat the same thing at back of book. Usually very large, heavy books have three or four sections reinforced in that way. Let the book lie for a half-hour or so to dry, then glue the back of the book well with a medium thickness of glue, being very cautious to get the glue in all the cracks and especially where the kettle stitches appear. This is the main part of a book bound this way. A book well glued is like a house with a good foundation, and this is really the foundation of the book. Having our book glued, we leave it to dry long enough to become so that the hand will not adhere to the back of the book in feeling it with the palm. We now trim the book on the front enough to

smooth the edge, and then round the back. This accomplished, we place the book between two wood boards, letting them drop down about an eighth of an inch from the back of the outside sections, and put it in standing press and give a hard squeeze, being careful to get it even, for if once pressed crooked it can never be straightened out.

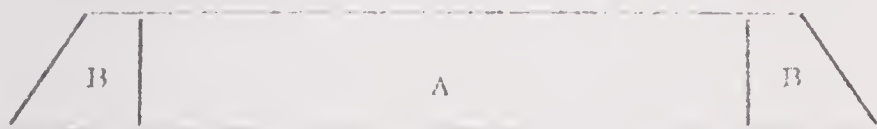
While we have our book in in press we may proceed to get out the necessary stock required in forwarding it, as it ought to stay in press about an hour or so. The first thing we will want is the boards for the cover. To secure these we glue two No. 25 and one No. 40 board together, one-third of the 40 board where it comes to the back of the book not to be glued at present. Boards before being glued together should be cut large enough to allow for a trim all around later on. Also paste a sheet of paper and attach to the No. 40 board. It will have a tendency to warp the boards toward the book. Place these between wood boards and put them in the press under slight pressure at first, then in a few minutes give them a hard squeeze and let them stay until wanted. Our next move is to get what we call the straps. These little things perform quite an important part in the construction of a book, and are the only strength given to the book outside of the gluing. These straps are cut the width of our space between the web stays, and long enough to lap three inches on each side of the book. The straps are usually cut from scraps of rough sheep, or fleshers, as it is called, but as

we have no fleshers so far, we will substitute a piece of wagon duck, from the dry goods store. We now take the book out of press and trim the top and bottom. A little ingenuity will have to be worked right here or the cutter will tear off a corner of the book. Lay a piece of broom handle against the frame of cutter farthest from where knife begins to descend so that a little of it will be cut off in trimming the book, then place book up snugly to it. A small piece of soft pine board should be trimmed out to fit under the back also, when you should have no trouble in getting a neat trim on the book.

Our next move is to color the edges. This may seem hard, but is very simple. Get a package of Diamond Dye, green; place it in a vessel and pour one and one-half cups of water over it, and boil. Then strain it through a piece of old muslin to remove the scum which will form on the top, and you have enough color for a hundred books like we have in progress now. Apply this with a No. 4 bristle brush or an ordinary small paint brush. Care must be taken in applying this to the edge to avoid the color running into the book. To do this right, lay your book down flat on a wood pressboard with the front of the book to you, and place a straight-edge of some kind on top and hold it firmly, pressing it downward, and while thus placed color it evenly. It will require but one coat.

We are now ready for our straps. Pasting the back of the book lightly first, we glue the

straps, placing them between the web bands, and also at each end, making five straps to the book; we rub these straps well against the back of the book, and also where they project up the sides of the book. It will take but a few minutes to dry these straps, and when dry we trim off the surplus of the two end straps, which of course will run over at each end a trifle. The next step is to lightly glue the waste leaf all over and fold it down one third of the way of the book then give it another fold, bringing it down even with the back of the book. Turn the book and proceed the same way with the other side. This is called making the hinge. Trim the hinge down to about three inches in width; also clip off the corners and cut the hinge down to the back just outside of the first and last web bands, as shown by heavy lines in diagram below. This done we are ready for



the boards. We take one of the boards and lay it on the book even with the first section proper, and mark the book with the point of a folder from one end to the other, and then pull the board down far enough to allow the joint rod to play in the space, thereby forming the groove or joint. Suppose the joint rod is a half-inch wide; we will allow an eighth of an inch for the leather to play in and another eighth for our spring back. We now have our joint three-quarters of an inch wide. Making another mark with the point of the folder, leav-

ing our board where we marked it the second time, and turning the book over with the board riding where we have marked and carefully avoiding shifting it, we now mark the size of our book on the board and cut the boards say one-quarter of an inch wider at top and bottom and three-eighths of an inch on the front. We now have our board cut with the projecting squares as required. Cutting the other board the same size we are now ready to attach them, which we proceed to do by bending back the No. 40 board enough to glue it and the other board. Now lay the board in place on the book letting that part of the hinge marked (A) to come in between the two glued boards, and the parts of the hinge marked (BB) to come between the board and the book. Remember, the thinnest board always comes next to the book.

We now place our book under the cutter clamp for a few minutes, giving it a slight nip to get the boards in their place firmly, and then are ready to make the spring back. Taking the book out of press we take a small piece of paper and measure the width of the back of the book. To do this lay the book on the table back to you and place the end of the paper, which is acting now as a measure, about the sixteenth of an inch over the first mark which we made when we were measuring our boards, and draw it around tightly to the other side the same distance and give it a fold or crease to mark where you left off. We now have the width or the expansion of our back, and our next move is to get the length, which we cut

exactly the length of the boards. There is but one way to mould this back, and that is with the grain of the board always—the grain running the narrow way of a full sheet. After cutting the back pass it through a bucket of water two or three times, letting the water penetrate through the board, and then let it get about two-thirds dry before molding it. The back being ready to mold, we hold it over a stove, getting it hot enough to make it fairly soft, and then place it in our backmold and rub it with a stick (the end of an old broom-stick will answer), rubbing it firmly backward and forward until it has the shape of a half tube. We now line this back with paper, joining the paper lining on the inside, and attach it to our book with two straps of paper, bringing the surplus of the strap over on top of the board cover.

We are now ready for the leather. We take a piece of leather and cut it wide enough to lap on the sides of the cover about two inches on each side and about two inches at each end for turn in; we dampen the leather thoroughly and paste it with heavy paste, leaving it to soak for about ten minutes and then apply it to the book. Here is where our difficulty approaches us and we may play with this a long while before we get it to suit us, but practice will bring us there all right. The leather is placed on this book the same as on our half bound book, with the exception that we draw a little more leather out at the ends to form the head on the spring back, bringing the

leather or using the surplus that we draw out to form the head with a folder in a crescent shape at each end. Having the leather turned in we now place the joint rods in the grooves we allowed between the boards and the spring back. Joint rods are oval on one side and flat on the other. Placing the oval side against the book, we lay a sheet of paper on top and covering the full width of the leather, as a pro-

(Iron for forming spring
backs for blank books.)



tector so the leather will not stick to our wood boards, and put the book in press principally to secure the groove joint. We now press it pretty hard and leave it there for an hour or so. Taking it out while it is still a little damp, we tie a string around it where the joint rods made the groove, tying it tightly and removing the wrinkles which will form in the leather with a folder. We then set the two heads we formed before in a crescent shape. While the book is in this state we cut the leather corners just the same as we did on our half bound book, and after placing these on each corner of the cover we lay the book aside to dry for a couple of hours, when the cloth sides are to be glued and put on. After the glue has had time to harden paste up the waste sheets to the cover and give a squeeze in the press for an hour, when the book is ready for finishing.

CHAPTER VI

LEAF BOOK BINDING--*Continued.*

HUBS AND BANDS.

The next subject to be taken up is the book usually called ends and band binding. The leather used is flesher or split sheep, and red cow hide. The flesher has a wooly surface and is of a cream color. The binding about to be described is usually employed on ledgers, etc.

To bind a book of this character the work is carried along the same as in preceding chapter to where the spring back has been formed and attached to the book.

After the horse back is put in place on the back of the book, compass the back into five equal parts or divisions. Place the two top hubs just above the marks and the two lower hubs just below the marks. This will leave the center panel the width of a hub wider than the two lettering panels, so that the strip of cow hide in the center may be of more imposing proportions and not look like a mere patch of red leather having no duty to perform, but will give the book a solid and stable appearance and yet leave the top and bottom panels the right width for the leather end strips.

The next step is making and attaching the hubs. Cut twenty strips of about No. 60 straw board three-fourths of an inch wide and six inches long. Glue five strips together and by catching them at the ends and bending them hastily a few times they will become more or

less pliable and be more easily bent around the back of the book. Glue the bottom strip and attach them to the book. After the ends are bent down they will have a tendency to want to creep away from the sides of the book, which can be overcome by using the compass as a clamp, letting it hold them while you prepare another hub. After the hubs are attached take book out of finishing press and lay it on a table, then place a small board on the top ends of the hubs with a weight on top of that, and let lay until dry.

When the book is thoroughly dry cut down the hubs even with the sides of the book, by holding knife on a level with the boards, then slightly round off sharp edges. Cut out leather to cover whole book so it will overlap an inch all round, paste thoroughly and fold in center. Put on book so fold will be in center of back and draw over tight and turn in leather at front of book only. Work leather in around hubs with finger and thumb and then with rubbing stick. Place tins on inside of book even with the back edges of boards: on the outside of book place first the joint rod in groove between board and spring back, then a sheet of clean, blank paper and a sheet of binders' board; put in press for fifteen minutes, then take out and work leather up close around hubs with folder or rubbing stick; after which trim away surplus leather at ends of book even with the boards.

In cutting the red leather for the ends allow an inch for turn-in. The neatest way to get

out the two pieces is to cut one piece just double the width wanted for the end pieces, then wet it thoroughly and work it with the hands like a woman does when washing a rag. Pare the edges all around; smooth out on a table and with knife and straight-edge divide into two equal pieces. Paste them thoroughly and attach to book, making the turn-in and forming the head at the same time. Should there be too much leather at the corners to make a neat job, raise up end of leather, turn it back on a smooth board (or a piece of plate glass is the best to pare leather on) and pare the leather down until satisfactory. The leather for center panel must fit snugly up to both hubs and extend exactly one-third the way up each side of book. The edges of this piece are not pared. Put on joint rods, tins and papers, and put in press for an hour, then take out and tie with string and set the heads and go all over book to see the leather is adhering properly and fitting the hubs nicely.

The next move is to mark the red leather for trimming the edges straight, then with knife cut away the leather neatly, using care that the knife does not cut flesh. Attach the leather for title panels, and book is ready for finishing.

THREE-QUARTER BINDING.

The forwarding of this style of book is the same as ends and band up to putting on the hubs. Before putting on the hubs paste and draw on the flesh, but do not turn in any

where on the book. Place joint rods and white paper on each side of book and give a squeeze in press, after which take out and trim all the surplus flesher away even with the edges of the boards. We are now ready to put on the hubs. The best method for locating hubs on three-quarter blank books is as follows: After the loose back is put in place on the back of the book, compass the back into five equal parts or divisions. Now, we will say the strawboard strips you are going to use for hubs are three-fourths of an inch wide; hold one of them edgewise at the top of the book and measure from the top of it with dividers and mark location for first hub, then proceed and mark off for the other hubs. By gluing the hubs on just below the marks you will have them equally located. This style of book is where the red leather covers the entire back and about two inches around the lids, leaving a square of flesher in the center. In cutting leather for the back make it four inches longer than the book, because it must be worked in rather loose around the hubs. The leather must be neatly pared to make it join up nicely on this kind of binding. In working leather down around the hubs with the fingers and thumbs, do it about the way you would fit a new kid glove. The wrinkles that will form in the sides of the back leather, caused by the fitting around the hubs, must be gradually rubbed out and scattered with the bone folder. After getting the leather on the back place the joint rods, tins and papers on book and put it

in press for a short time, then put on the end leathers and finally the sides. Give another squeeze in the press, then tie string around book and set the heads, go over leather at hubs and edges of boards with rubbing stick. square up the panel with knife being careful not to cut flesher, and finally lay book on table to dry, the under lid hanging down and the upper lid propped up.

FULL LEATHER BINDING.

A class of books, particularly county records, are now being covered entirely with one piece of cow hide, which makes a very beautiful book, and are probably no more expensive than the book just described. On this book no flesher is used, but a double hub comes into play, the second half being glued on after the first is dry. Do not make these hubs as thick as on the former book, as the thicker the hubs the harder it is to fit the leather around them and get the wrinkles worked out. In cutting out the leather allow it to extend three inches at each end, for the double hubs will take up more slack. For the location and size of a hub on this kind of a book a set rule would hardly apply, but usually being a duplicate of some other book the dimensions can be taken from that. }

PATENT BACKS.

The so-called patent back book (the patent on which has expired) differs from others only inasmuch as the sections of the book proper are sewed to a stub, making a hinge when com-

pleted, thus allowing book to open perfectly flat, and causing the purchaser to smile with satisfaction. The "guards" can be purchased by the yard or in single pieces. It is easier to sew a book where single guards are used, but some binders prefer them all in one piece. I would suggest the beginner use single guards, especially if he can get at a sewing machine that will use coarse linen thread and make a stitch a third of an inch long.

In making a patent back book the first and last sections should be composed of five sheets and the balance of the sections six sheets. Fold sections, and if you sew the guards on by hand, take a small awl and punch holes an inch apart through the fold and from the inside, beginning a half inch in from the end and ending not closer than half an inch of the other end. In sewing commence at outside and center of section, and sew with practically the same stitch as in cheek binding, only, of course, sewing through the fold, and tying the two ends of the thread together with a double knot. The waste sections at front and back of book are not attached to guards but are sewed directly to the tapes.

In attaching the sections to the tapes sew the waste section as usual, then lay on first section of book and whip-stitch along the lower half of the guard, making stitches half an inch long, going across tapes same as though book was being sewed in the usual way. Lay on next section and whip-stitch the bottom half of guard to top half of the one below, and so on.

The whip-stitch need only be placed in far enough from edge of guard to insure it not tearing out.

If guards are attached to sections with a machine, commence sewing half an inch in from end and finish same way, then draw ends of threads out at back and tie double knot, thus insuring them not to ravel and allow ends of sections to become loose. In sewing guards on a machine you will have to make two gauges (say a two-point rule on top of nonpareil slug, allowing rule to extend over slug a pica) and screw them down half an inch on each side of needle. The cloth side of the guard is the one that comes next to the section always. In using the guards all on one piece, first form the creases like shutting an accordion, then use two needles and threads, one to sew section to guard the other to sew guard to tapes as though it was a section of an ordinary book, and so on, sewing first one then the other all through the book.

Glue the back thoroughly, and lower book in finishing press almost flush with top, then give a good squeeze until dry, after which forward in the usual manner.



CHAPTER VII.

FINISHING.

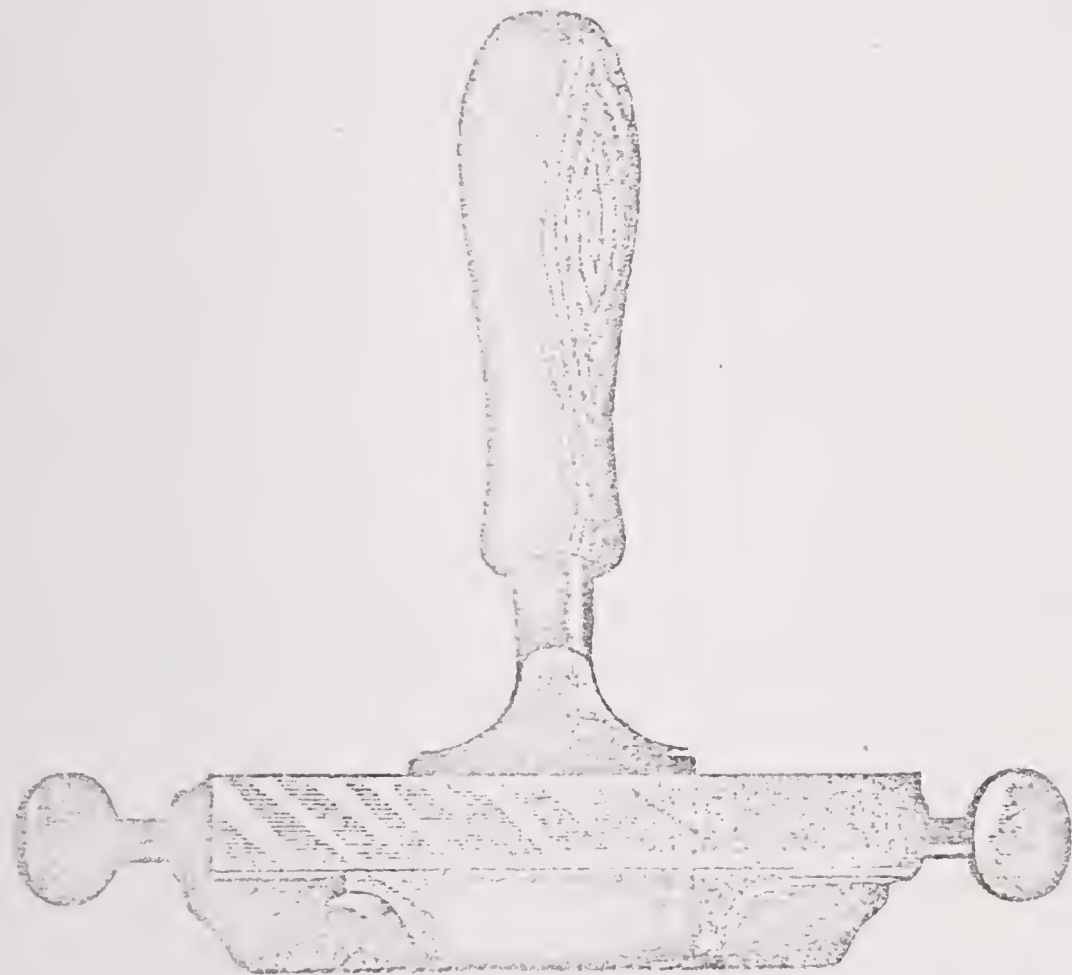
The best time to finish a book is from twelve to two or four hours after being put in leather. Should it stand longer the leather becomes very harsh, and causes considerable trouble to get gold to stick. Much difficulty will be experienced by the learner in overcoming the obstacles to be met with at even a moderate least puff of air will send the gold flying. Grease is its abomination and must be carefully avoided except where the nature of the work especially calls for it.

To do the work one must have a lettering pallet, at least one gilding roll, gold cushion, gold knife, and steel polisher, four small sponges, a pound of banana oil, box of gilding powder, whites of three eggs, two ounces pure olive oil and a bunch of cotton. Gold leaf can be purchased by the single book, or as much more as desired. Gold cushion can be made out of a board eight inches square, three pieces of blotting paper seven, seven and a half and eight inches square, a few tacks and enough flannel or cow hide to cover it. Put

smallest piece of blotter next to board and largest piece on top, then tack on the leather, undressed side up. To make glair take the whites of three eggs, beat them with an egg-beater and let stand until morning, then pour liquid in bottle and add three tablespoonsfull of vinegar and a half dozen drops of milk.

If your druggist does not have the banana oil he can easily procure it for you.

Much difficulty will be experienced by the novice in finishing, and sometimes even by men who have been long at the trade, in making the gold stick in a satisfactory manner, and in



(Lettering Pallet)

getting the clean neat gloss so essential to a well finished book. This is caused by a variety of reasons, and that the workman may better understand these reasons I will give the

best methods of preparing the different kinds of leather in common use, for all this difficulty must be traced to the preparation of the leather.

Glazed skiver, being the least porous leather used in bookbinding, is the simplest to prepare for finishing: first wash the leather clean, using a sponge, with very thin paste water: about a tablespoonfull of paste to a half pint of warm water, well mixed and the lumps well strained off being about the right proportion. When dry give two coats of glair, don't give the second coat until the first coat is thoroughly dry, use a sponge. When the second coat is quite dry the book is ready for the gold. Place your book now in the finishing press, get gilding roll so hot that when touched with wet finger, like a woman does an iron, it will sizzle quite lively, but if too hot it will burn the leather and the gold will not stick. Have a sheet of gold on the cushion cut in narrow strips, and a bunch of cotton with a few drops of olive oil work into it. Take up roll with right hand, the handle resting on right shoulder and bent part of iron shank down, with left hand rub oiled cotton lightly around edge of roll, turn roll lightly on strip of gold, and it will be found that the wheel has taken it up. Repeat until wheel is covered, then run it firmly over the back of the book, having first wiped the back of the book with the oiled cotton to prevent the loose gold from sticking to it. If you will place your left thumb where the line is to start, bring roll

over against nail, quickly remove thumb and at same time start roll, you will find you have a most excellent gauge with scarcely any danger of burning the thumb. This should also be followed when lettering.

In lettering, rub leather with oiled cotton, with another lump of clean cotton, lightly rubbed against your hair to grease it slightly, take up a piece of gold sufficiently large for the lettering and place it on the book. By getting length of line with compass, starting point can be easily located and marked with a slight scratch. A small thread with a quad tied in each end gently laid across book where top of letters are to come will greatly assist you in running a straight line. Do not fasten letters tightly in pallet until just before using them. Get your type the same heat that you had your roll and lay firmly on the book. The larger the letter used the more pressure required to make gold stick. Now rub off the loose gold clean, and polish your book, having the polisher a little hotter than the type, and last thing give a thin coat of banana oil.

Glazed roan is next in order. Follow the previous instructions, except make the paste water a little thicker and give three coats of glair. Turkish Morocco and levant to be treated like glazed skiver, only after putting on the paste water rub well with a stiff clothes brush, until almost dry, and put the glair on with a camel's hair pencil, if a sponge is used the glair is likely to show white between the grains of the leather, and put the glair only

where the gold will cover. Undressed roan, cow hide, Russia and buffing may be prepared in the same manner as glazed roan, only use the paste water considerably thicker and the tools and type must be a little hotter.

A different preparation for calf is necessary because it is more porous. You first put the colored title on your book, and having mixed your paste water thick as thin paste and very clean, add a few drops of oxalic acid, then paste the back of the book well with the paste brush and rub it in with the flat side of the folder, after which wash off with the paste water. When dry give a coat of English geletin dissolved in hot water, about a cake of geletin to a teacup of water, then give three coats of glair, and when thoroughly dry lay the gold on with lard instead of sweet oil and use the tools the same heat as for cow hide. Calf thus prepared will keep moist for some time, but the other leathers should be finished the same day or the leather may get too dry.

Another way to prepare cow hide for finishing is to dissolve a little thin glue in warm water, add to this a few drops of glycerine and wash the leather with this preparation instead of paste water, when this is dry apply a coat of thin glair, and after this has dried go over the back with a hot polisher, just as if the book was finished; then give another coat of thin glair, and when dry finish as usual. It will be found that by this method of preparation a much better and quicker job can be done than by the old method of paste washing and

glairing, because the glue dries quickly and gives a firm foundation for the gold, and when you are absolutely sure the gold will stick all your attention can be directed to keeping the lines straight. In fact, this method of preparing leather for finishing can be used to good advantage on all kinds of book leathers except English calf, undressed roan and sheepskin. These latter leathers are of such a porous nature that a coat of paste water is first necessary to prevent the stronger glue size from staining the leather. A much better polish can be had on these leathers by using the glue size after paste washing and before glairing.

Gilding powder is usually used for the purpose of stamping names on pocket books, bibles, etc. When using gilding powder, in order that bright lettering shall be the result upon any particular manufacture of leather, a limited application of moisture should be applied just before the time of lettering, and when evaporation from the surface is apparent the powder may be applied with a bunch of cotton, after which lay a strip of paper on the book to extend up to where the tops of the letters are to come, then with another lump of cotton brush away the uncovered powder and you have a nice gauge to assist in getting a straight line. Some leathers having a particularly glossy finish moisture will not readily penetrate, in such cases a very light coat of banana oil if properly and dexteriously applied will greatly help in making a splendid job if the gum is distributed over the varnish

after it becomes dry as an accompanying aid. The temperature of the type however must be quite low. One of the principal peculiarities in powder lettering is that gold leaf must be attached to the type, and this is the opposite of ordinary finishing when prepared with the egg albumen. The type being heated, an oiled flannel should be rubbed over its face and then lightly pressed upon the leaf on the cushion. All gold overlapping at the upper edge of the type should be lightly pressed down slightly with cotton batting. By doing this it will greatly help in accomplishing a straight line.

Lettering on cloth by hand is a hard job and of uncertain results. Even finishers of long experience avoid it as much as possible, preferring to attach thin leather labels to the back and lettering on them. However you should practice on it, using the different methods heretofore described, and possibly you may hit onto a combination that works satisfactorily. Cloth cases can be stamped in a job press by removing the rollers, heating the type every little while, and using a small amount of oil to cause leaf to keep its place, and the gilding powder.

To finish books in antique, that is, without gold, have the tools not as hot as for gold and make the leather quite wet with clean water, or a piece of sal amonia about the size of a hazel nut dissolved in it will keep the leather moist longer and cause the tools to strike blacker. The tools require to be put in three or four

times each to make them bright and glossy; when the design is complete brush the leather bright with a stiff clothes brush, and when thoroughly dry draw a camel's hair pencil soaked in varnish through the thick lines and in the heavy tools used for center pieces; this gives a very nice, rich finish when carefully done and is usually appreciated as much, if not more, than gold finish. For antiquing a straight line use a plain gilding roll with a wooden plug driven in between wheel and shank to prevent wheel from turning, and moving backward and forward with a jiggerdy motion.

In blank rolling see that the rolls are running freely before putting them on the flesher. To make them run freely, and also to get a good, even brown color, apply a plentiful supply of beeswax when the tools are thoroughly hot--hot enough to set the wax in a blaze on application. The evenness of the color depends to a large degree on the speed with which the blank roll passes over the flesher. As the tool cools a slower speed is required, and vice versa when the tool is very hot. The blank roll should be brought down on the leather with a bang, otherwise the roll will dwell longer on the flesher at the beginning than at the other parts; this, of course, will produce a darker color and consequently an uneven effect, and would be liable to burn the leather too deeply. Another way to get an even color with burning rolls on fleshers is to first wash the flesher with oxalic acid and when

dry roll as usual and a nice dark brown tint will pay them for the extra labor.

In polishing, use the iron as hot as the leather will bear without turning up white: do not forget to polish the head, the edges and the inside squares of the lids. If the boards should have a slight warp outward, and the book be already pasted up, go over the inside of the board with the polishing iron: if pressure enough be used the warp will thus be counteracted.

If the book is pasted up and pressed after finishing, as is usually the case, put joint rods in and rub them first with a greasy rag. Banana oil varnish should be applied sparingly and neatly, and should be worked on with a circular motion, making small detours, and never in a straight line. The leather should be gone over with a greasy rag after varnishing and before putting in the press. Do not forget to also rub the press tins with a greasy rag before putting in the book.

It is usually the case for flesher to become more or less soiled in binding, which can be remedied by wrapping a piece of medium sand paper around a small block and give the flesher a thorough going over, using care not to scratch the other leather.



CHAPTER VIII.

FANCY EDGES.

GOLD EDGES.

In edge gilding much care must be taken to trim the book smooth as it saves considerable scraping, and the gold will not stick unless a smooth edge is prepared for it. Place your book in the press, the edge to be gilded upwards, as flat as possible and screw very tight. Rub over with red chalk dissolved in water, then scrape perfectly white, leaving a smooth, bright edge. Now dust over the edge a little red chalk and rub it in with a solution of gum tragacanth of about the consistancy of cream and rub with a soft brush until dry, and then carefully burnish with an agate. It is now ready for the gold. Very strong paper will require stronger size than for hard paper, but for ordinary book paper white of one egg to half pint of pure water and ten drops of muriatic acid will be the right proportions. Put size on freely with a flat camel's hair brush and be sure to get gold on flat and without wrinkles before the size dries, otherwise the gold will not stick. Cover up the edge so that nothing will touch it while drying. When the gold can be rubbed on the gilding board, that is, the board on each side of the edge, without rubbing off, the edge is dry enough for burnishing. This is done by first going over it with the burnisher, with a sheet of writing paper over the edge between the gold and the

burnisher, having rubbed the top side of the paper with a little beeswax on a leather pad to allow the burnisher to slip over without sticking; when you have burnished it well over the paper then rub the waxed pad over the edge and burnish very carefully with the agate.

In edge gilding enamel paper scrape down the rough places. Don't have any moisture on edge up to this point. Sprinkle red chalk just enough to make a good ground for the gold. then take a sponge dipped in thin paste, free from lumps, and rub the red all over, then brush it thoroughly dry before laying on the gold. The size ought not to be stronger than the white of one egg to a pint of cold water, well beaten up, and allowed to stand an hour before using. Apply quite liberally but not enough to make pools. Cover edge to keep off dust. When edge is dry, probably an hour or an hour and a half after laying on, take your wax pad and apply it very liberally, then burnish directly on the gold.

RED EDGES.

A cheap, good looking red edge can be made from eosine dissolved in water, put on with a sponge and brushed with a stiff brush until dry, then burnished. This will not rub or peel off, and for all ordinary purposes answers very well.

To make a red and gold edge, before putting your book in the press to gild fan out the leaves very carefully and apply eosine red dissolved in water, not very strong, with a sponge. Look out and have only enough in

the sponge to stain just the edge, or it will get too far in and spoil the margin.

PEARL EDGE.

Put the book in the press, same as for gilding, keeping the edge very flat, scrape smooth without putting on red chalk, and lay the gold on the white surface with gilding size. When dry burnish with paper between the gold and burnisher the same as in edge gilding, then tool the edge into any pattern, as in finishing, making a pretty deep impression. Then take a smooth scraper and scrape off the gold where the tools have not pressed down. The edge may be burnished or left dull according to taste. The effect of this edge is very pretty, and as a wedding or birthday present for a young lady nothing can be more chaste, especially if the book be bound in white vellum or virgin Morocco.

BLACK EDGES.

To give a book a neat black edge observe the following process: Put the book in the press as for gilding and sponge with black writing ink, then take ivory black, lamp black or antimony, mix well with a little paste and rub on the edge with the ball of your hand till it is perfectly black and a good polish is procured. Then burnish the same as any other color edge. The edges require to be scraped in the same manner as for gilding and is quite as expensive.

GREEN EDGES.

Much difficulty is experienced in coloring the edges of books interleaved with blotting

paper, or where the book is made of very soft paper, or where considerable gall has been used to make the feint line ink flow evenly, as the color runs in on the outer edges of the leaves. To prevent this dissolve a few flakes of gum tragacanth in liquid green Diamond Dye. This will form a paste and may be applied to the edge with a sponge, and will make a fine green edge without danger of running in. To burnish this edge, first rub it lightly with the beeswax and then go over it with the burnisher, and a nice effect is the result.

SPRINKLED EDGES.

Take equal parts of venetian red and burnt umber, dissolve in water and add a little paste and olive oil. Apply by using a small shoe polishing brush rubbed over a seive made of screen wire attached to a frame. The right size sprinkle can be judged by testing it over a piece of blank paper. The heavier the brush is charged the larger will be the spots.

TRANSFERRING MARBLE.

Trim the book smooth and screw up in the finishing press between boards not very tight. Give the edge a coat of glair, put a piece of "Belgian" marble paper, face downward, on the edge, while the edge is still wet, and with a flat brush saturate the back of the marble paper with muriatic acid, then lay three or four thicknesses of paper on top and rub it gently with your hands. Comb paper comes off best. English and imitation English marble papers also work well, and make a pattern that none but professional marblers

can imitate. German paper does not work very well. On some kinds of paper it will be found necessary to pound the marble paper, while transferring, with the backing hammer, keeping a pad of waste paper between the hammer and the marble paper. With very little practice good edges can be made.

MOTTLED EDGES.

It takes a little practice to make this kind of an edge, and also some patience as well, to get it to suit. First get the wax. The best adamantine candles will answer admirably. They can be procured at any grocer's. Melt them in a quart saucepan. Take the strings out. Melt until very hot without burning. Make a brush out of some broomcorn about 1 or $1\frac{1}{4}$ inches thick. Wrap tight with string about $1\frac{1}{2}$ inches from the end; cover the cord with a piece of flesher and place it in the hot wax. Take the brush with the hot wax adhering, and striking it on the press pin or some other suitable article to jar the particles of wax from it, judgment may speedily be made of the size of the spots needed. The best way is to take a sheet of paper and try the brush, as it may be too full of wax, and beat out until the size spots needed are obtained. Then take the color and put on with a brush. When the book has been cut on the front put it in the finishing press, and see that it is screwed tight. Take the paste brush and cover with paste. Rub dry with some shavings, and see that it is dry before putting wax on; if damp, the color will run under. If two colors are

needed, after pasting and rubbing dry. take picric acid and coat the edge: let dry: then sprinkle with wax: then put on the red color. When dry, take a dull knife and scrape off. For three colors, put on plenty of wax: then put on a green color: when dry scrape off all the wax: then wax again: then color with red. and when dry scrape off clean, and you will find you have three colors—a white spot, a green spot, and a vein of red running through. and so on. Combinations can be made to suit the fancy.

A new idea for burnishing or rather polishing sprinkled, marbled or colored edges, is fast coming into use. Instead of the agate or bloodstone burnisher the new ones are made of steel, the same shape of the stone burnishers and are used hot like a polisher, so that if a liberal amount of beeswax is used in the usual manner on the edge a very brilliant gloss is obtained with very little labor.

A very good edge scraper can be made from an old saw blade about two inches wide and five inches long. The edge to be kept ground perfectly square.

Another useful implement can be made from the same thing about three inches wide and six inches long, with the edge ground down about half sharp and rounded. It is used for turning in the edges of cloth cases.

CHAPTER IX.

CONCLUSION.

WASTE LEAVES.

There are many different methods of making end papers. A good method, which applies particularly to first-class blank books is the following: Four sheets of paper are required, which should be the same as is used in the book. Fold the four sheets singly. Cut two strips of leather, cloth, or linen, whichever you wish to use, about two and one-half inches wide and the length of the fold of the four sheets. These are laid upon a piece of waste paper and glued carefully with thin, warm glue. If leather is used the edges should first be pared. One strip is now taken and laid upon the bench, the glue side up. A sheet of the paper is taken and the folded side carefully placed upon this not quite half way; another sheet is taken and laid parallel to the first with about one-eighth inch between. The whole is now turned over and rubbed carefully with the folder, to insure the cloth adhering at every part. The other is treated in like manner, and thus the four sheets become joined by the cloth in a pair of end papers. Marble paper is now taken and trimmed near the size of the page, glued and laid upon the inside of the end papers, allowing it to overlap the cloth, so that when finished the cloth joint will be about two inches broad, with the fold in the center. after which give them a nip in the press. then

lay aside to dry. A good way to place the marble paper on the sheets is to lay on the under one and smooth it down, then lay the other one on it, glue side up, and bring the top sheet over on that, thus insuring the margins of the cloth or leather hinge being the same width.

To make end sheets for large books to show cloth joints, cut a strip of cloth an inch and a half in width and same length as book, cut a sheet of fancy end paper same length as book and one-fourth of an inch wider, cut a sheet of plain paper double the width of fancy sheet and fold in center. Now paste cloth to plain side of fancy sheet with one-fourth inch lap. Now tip fancy sheet to inside of plain one so the one-fourth inch cloth will be between them. Now give the whole business a one-eighth to one-fourth inch fold-over at the back and hook it over the first section of the book, when it will be sewed through with the first section. The first and second sections must be tipped together with paste to hide the stub of the waste section. When ready to paste up book tear off top waste sheet, which will leave an inch strip of cloth and the fancy end sheet exposed. Paste cloth and attach to cover of book. After which cut another fancy sheet and attach to cover, leaving one-fourth to half an inch of cloth exposed.

BOOKBINDER'S PASTE.

Take a quart of water and dissolve in it a teaspoonful of pure powdered alum. Stir into this enough flour to make a thick cream.

Break up every lump in the flour until the mixture is smooth. Stir in next a teaspoonful of powdered resin. Now pour in a cupful of boiling water. Stir it all well. When the mixture has thickened from cooking with the boiling water, pour it into an earthen vessel. Add a few drops of oil of cloves. Place in a cool place. When any portion of it is desired, take what is needed and soften with a little warm water. For larger quantities, adjust the proportions accordingly.

ALWAYS READY GLUE FOR TABLETING.

It is quite a consideration in most printing offices to have glue always ready to make tablets without having to await the slow process of lighting up the stove and heating the glue. The following recipe will be found to fill the bill to a dot. The glue always remains ready for use: Acetic acid 16 ounces, ground glue 11 ounces: placed in a quart glass fruit jar and left for twenty-four hours: then add two ounces of glycerine and one-half ounce boiled oil. Color with Diamond Dye to suit. To make tabs extra strong put on a coat of glue and attach a piece of super, then another coat of the glue.

MAKING CASES.

In making cases for a number of books of the same size, first find location of boards, as described in edition binding, after which cut a strip of strawboard or binders' board the exact width of the space between the boards and it will be found to answer nicely. Should you have a large number of cases of the same

size to make, plane a wooden board down to right width, then nail a piece of riglet across one end at exact right angles, so as to form a **T** and it will answer as well as a five dollar case gauge. When making the cases, first glue the cloth, lay on one board, then the gauge, then the other board, then take off gauge and in its place lay on a strip of lining paper the same length as the boards and the exact width of the back of the book. Then turn in the edges of cloth.

When making leather cases, fan out the boards so the back edge will take about one-fourth of an inch of paste, then lay boards on leather and put on lining paper. When ready to turn in edges cut a piece of strawboard the exact size to cover both boards and center and glue a small strip in center to lift it by. Place it on case, then paste leather all around and turn in the edges.

CANVASS COVERS.

First cut two pieces of straw board the same length as book and about two inches narrower. Attach them temporarily to inside of book covers with a drop of glue, letting them come even with the outer edges of boards. Cut canvass so it will have an inch turnin all around. Place it around book and paste and turn in the front edges and let it dry. Then remove from book and paste and turn in the ends. After it is dry square the turnins and attach a heavy piece of paper to the strawboard to bring it up even with canvass, then glue on the marble paper. To letter cover, put

it on book, slightly dampen canvass and use type in pallet inked with ordinary job ink.

SOFT RUBBER TO CLEAN OFF GOLD.

Take a piece of common rubber gum, or bottle rubber, some call it, and cut into small pieces; put into a cup and cover with coal oil, leave soaking four days, then take it out and rub well between the hands for half an hour: it is then ready for use.

NOTES.

LePage's glue poured in a bowl and thinned with cold water will work all right for gluing envelopes, labels, etc.

For gluing brass or glass, give a light coat of Japan lacquer first, which can be procured at any paint shop, and then either paste or glue will stick firmly and hold indefinitely.

The intention was when this book was commenced to give a chapter on marbling, but as it is difficult to learn and having gone out of style except in very large shops, it has been left out.

A binder's hammer is on the same style as a shoemaker's only usually a little heavier.

The paring knife should be ground all on one side, the upper, like a paper-cutter knife, and a razor edge kept on it with an oil stone.

Should you get a book to repair that the first or last section has become loose, it can usually be remedied by whipstitching loose section to the one next to it, thereby avoiding taking the book to pieces and resewing it.

To put in a new lacing cord without resewing book, take small awl and make a hole

where the old cord was about half way across back, then insert new cord with needle, flatten out cord and paste to back of book, and it will be found to answer nicely.

In making the spring back for a blank book usually the best tar board is used, but ordinary binder's board will answer.

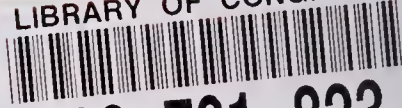
One peculiarity well to remember is when a binder speaks of a quire he means twenty sheets. for example, an 8-quire book would require 160 sheets of paper.

Numbering the pages is usually the last operation on the book. To keep numbers from offsetting when numbering left-hand page have a piece of blotting paper between that leaf and the one preceding.

To transfer a sheet of gold leaf from book to cushion. lift up cover leaf. lay knife flat on gold about half way down and blow gently at edge of leaf, when it will fold over knife and can be transferred to cushion. Then at a turn of knife gold will usually fall into place smoothly. If it doesn't, by breathing on it gently will usually accomplish the desired result. It can easily be cut the desired size with the edge of the gold knife.

Slade, Hipp & Meloy, Chicago; and Gane Bros., Chicago and St. Louis, are wholesalers in binders' supplies, and will gladly furnish catalogues and samples on request.

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